CLASSIFICATION C-O-N-F-I-D-E-N-T-I-A-L

25X1

CENTRAL INTELLIGENCE AGENCY

REPORT

INFORMATION REPORT

CD NO.

COUNTRY	USSR (Saratov Oblast)	DATE DISTR.	5 May 1955
SUBJECT	Tractor Parts Factory in Saratov	NO. OF PAGES	17
PLACE ACQUIRED		NO. OF ENCLS. (LISTED BELOW)	
DATE OF INFO.		SUPPLEMENT TO REPORT NO.	25X1

THIS IS UNEVALUATED INFORMATION

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1. Attached is being forwarded as received.

2. On page 3, Annex 2, point 9, politruck should read politruk.

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STATE	X	NAVY	X	NSRB		DISTRIBUTION													
ARMY	X	AIR	X	FBI															

a foundry with molding shop, mold assembly shop, melting furnaces, a foundry floor, cleaning department, laboratory, electrical switching room, and material stock department;
a mechanical department with subdepartments for the assembly of sowing machines, shaft manufacture, gear manufacture, and the manufacture of motor blocks; a blacksmith shop, a hardening department, and several subsidiary departments including two locksmith shops, two electrical workshops, two carpenter's shops, and a scrap crushing shop;
several material stock departments, an administration building, workers settlements, a garage, a tailor and a shoe shop for employees of the factory, a ration supply point, guard houses and watch towers.
Power was delivered by the Saratov power station. Natural gas from wells near Saratov was delivered via a distribution point to the different firing places. Superheated steam was supplied by a mobile engine. A depression located at the north-eastern corner of the compound was used as a dump for unserviceable machinery parts.

4. The factory manufactured 4-cylinder motor blocks for tractors of types "NATI" and Nr 273, in addition to track shoes about 40 cm wide, rail wheels and wheels for tractors of type 273, camshafts for 4-cylinder motors, crankshafts, gear shafts, axles, gearwheels, and bevel gears.[4] In January 1949, a special order was received from Moscow regarding the manufacture of 10,000 belt pulleys of undetermined size to be delivered by 15 August 1949. Another order received in mid-1949 concerned the manufacture of an undetermined amount of cogwheels, some 50 cm in diameter and with a 4.5 cm gear rim. In 1947, attempts were made to manufacture 6-cylinder motor blocks. These attempts were, allegedly, discontinued because they ended in failure. [redacted] the manufacture of 6-cylinder motor blocks in 1948 and 1949. 25X1

5. The work management made known public that the over-all work norms had been fulfilled 500 to 600 percent in 1945/1946. In late 1948, a 1,200 to 1,400 percent fulfilment of the work norms was announced. [redacted] this increase was mainly the result of the intensified employment of specialists from among German PWs. In contrast to a well over 100 percent increase in the over-all worknorms for 1945/1946, the output i the ouput in various departments fell far behind this figure. In 1948, the output of the foundry reached only 80 percent of the production target due to the high percentage of deficient products. 25X1

6. Prior to 1947, the monthly output of motor blocks amounted to some 5,000 units. Nearly 50 percent were defective. Between 1947 and November 1948, 2,500 large and 2,000 small motor blocks were manufactured per month not including 15 percent defective items of each category. In 1949, [redacted] a daily output of 350 motor blocks. The work norms for the machining of camshafts manufactured at Plant No 1 was scheduled to 40 items per shift. The PWs fulfilled this target 110 percent producing 46 camshafts per shift, while the Soviet workmen, who worked the night shift and the early morning shift, manufactured 30 to 35 such items. The daily output amounted to 100 camshafts not including deficient items. The work norms for the manufacture of tail wheels cut from angle iron was fixed at 8,500 items per five-men shift, a daily output of 7,500 items. In 1945/1946, 240 molds had to be carried to the kilns if fulfilment of the norms. Generally 110 to 120 percent fulfilment was reached. At the smelting furnaces, the average output amounted to 80 percent of the target in 1948, while the total output achieved by the factory as a whole was 1,200 to 1,400 percent. The substandard output was attributed to the high percentage of defective goods which sometimes reached the 30 percent mark. This percentage was caused by poor workmanship os Soviet furnace operators and poor quality of the molds. The percentage of defective molds varied between 25X1

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7. Raw materials were delivered by rail. No details about their place of origin of the size of the shipments were available. No information was available about the nature and the place of origin of the component parts for sowing machines. The carpenter's shop manufactured shipping boxes and cleats for the shipment of motor blocks. These boxes measured: 95 x 40 x 40 cm for 6-cylinder motor blocks, and 50 x 40 x 40 cm for 4-cylinder motor blocks. Thirty boxes of each size were manufactured per shift, 180 per day. There was no stock-piling.

8. The Soviet workforce amounted to 3,000 workers including 10 to 60 percent females in the different departments. Occasionally, some 300 civilian forced laborers, mostly of Ukrainian extraction, were employed. The number of PWs was 1,350 men. Three 8-hour shifts were worked on 6 days of the week, on Fridays the shifts were changed and only 2 shifts were done. In January 1950, new workers were employed. At the same time, the PW camp was disbanded and the dwellings dwellings were taken over by Soviet workmen.

9. The compound was surrounded by a 2.5-meter high board fence topped by barbed wire. Watch dogs were leashed to "traveling chains" (Laufketten) at the inner side of the fence. Several watch towers werellocated at the exterior side of the fence. The work police which was also in charge of the gates consisted of male and female civilians armed with carbines. Within the compound the PWs were guarded by 50 to 60 Soviet soldiers. Each employee was equipped with an identification card to be shown when entering or leaving the factory area.

1. [redacted] Comment. For details of the location of the "Serp i Molot" plant in Saratov, see Annex 1 25X1
[redacted] 25X1

2. [redacted] Comment. According to available data, the "Serp i Molot" works are housed in the former iron foundry "Kaganovich". This foundry was a branch plant of works No 614 "Traktordetail", located on the opposite side of Astrakhanov street and which manufactured ammunition and weapons during the war years. After the end of the war, the plant was converted to the manufacturing of agricultural machines and tractor parts. The present "Serp i Molot" factory was named after the Kharkov factory of agricultural machinery which had partly been transferred to Saratov during the war. 25X1

3. [redacted] Comment. For layout sketch of the tractor plant, see Annex 2. For layout sketch of the foundry, see Annex 3. For layout sketch of the foundry Department No 1, Mechanical Department, see Annex 4. 25X1
[redacted] 25X1

4. [redacted] Comment. Annex 5 contains working plans of camshafts and motor blocks manufactured at the plant in question. 25X1

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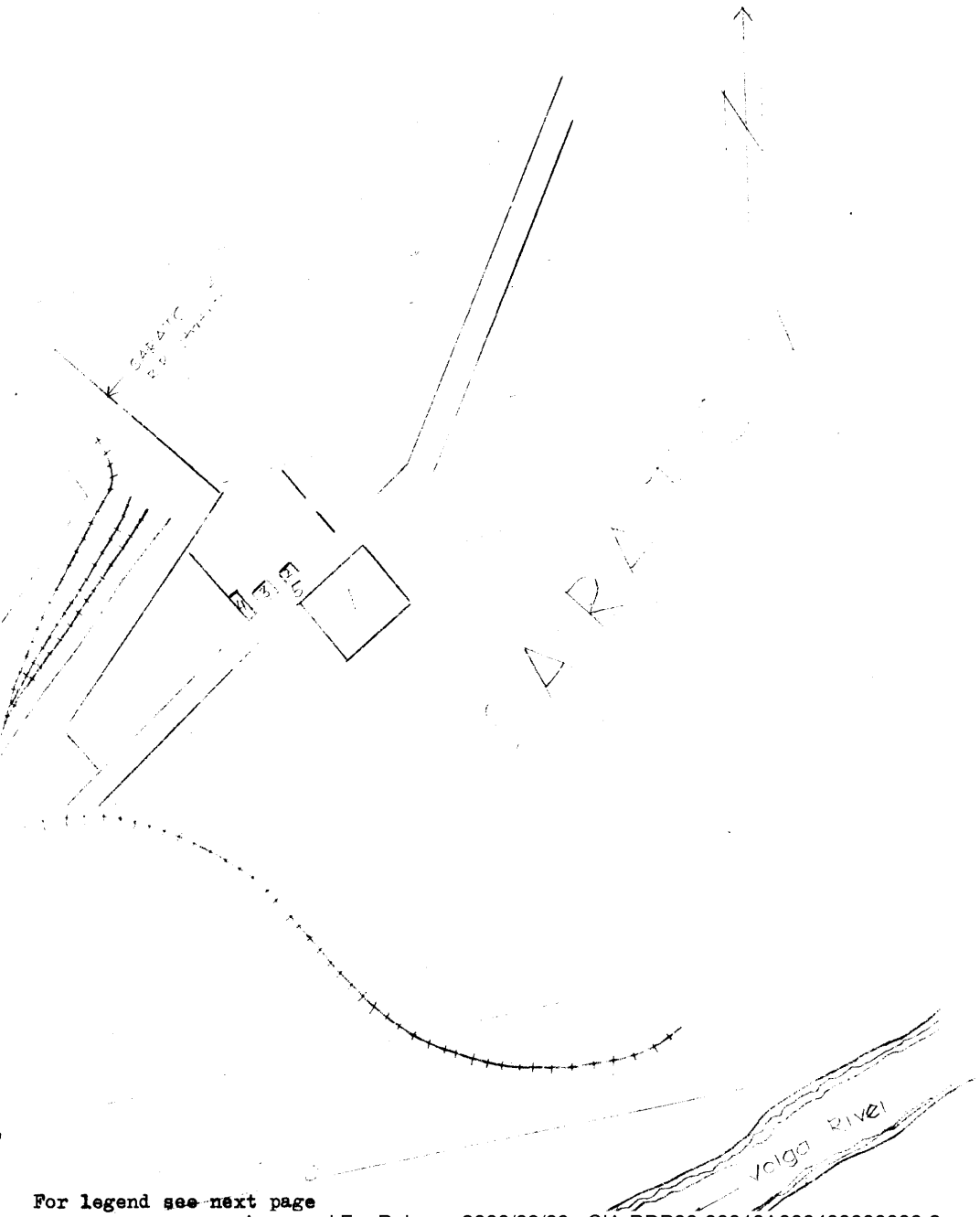
Annex 1



For legend see next page

[redacted]

Location Sketch of the "Serp i Molot" Tractor Plant at Saratov.

Legend:

1 Tractor Plant "Serp i Molot"

2 Secretariat of the Communist party

3 Mattrass factory

4 Shoe factory "Molotov"

5 Astrakhanskaya street with streetcar line

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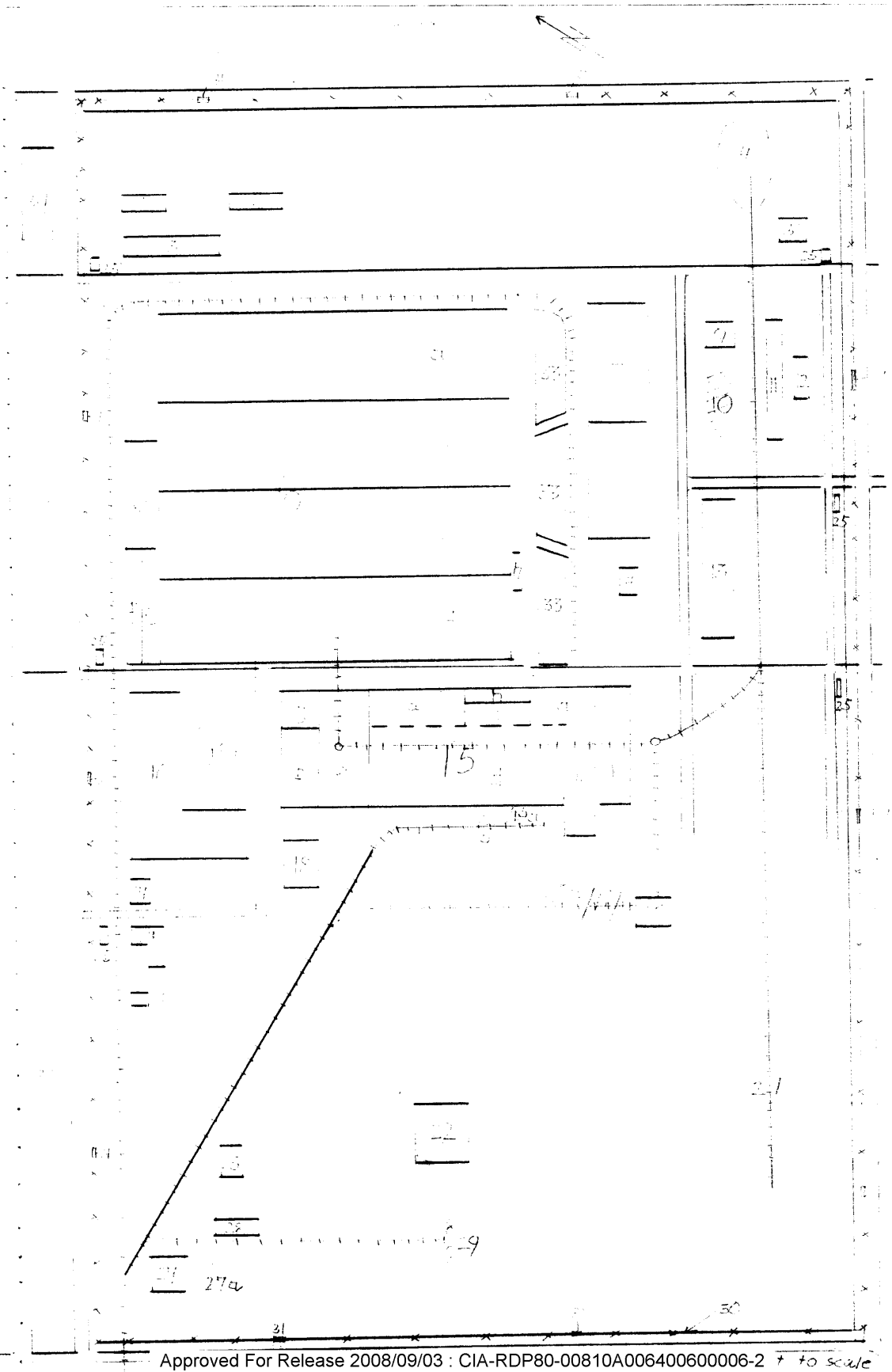
Annex 2



* to scale

Layout Plan of the "Serp i Molot" Works in Saratov.

Legend:

1 Carpenter's shop, brick building, 50 x 20 meters.

2 Carpenter's ship manufacturing shipping boxes, a brick building 60 x 15 meters.

3 Locksmith shop OGM for the assembly of machinery and for major repair work, a brick building, 80 x 20 meters.

4 Depression which was gradually filled up with waste material .

5 Department manufacturing electric motors and armature coils, a two-story brick building, 25 x 15 meters.

6 Main workshop, a steel skeleton structure with brick walls, 300 x 300 meters, with a two-story annex to the northwest 200 x 30 meters, with a loading ramp.

a Department 4, assembly of sowing machines.

b Department 1, manufacture of various shafts, such as crankshafts, camshafts, gear shafts, as well as axles.

c Department 3, manufacture of cogwheels and bevel-gear wheels.

d Department 2, finishing of motor blocks.

e Instrument department, with packing department, storage room, shipping department and offices

f Living quarters

g Billets for guards, occupied by some 30 men and women.

h Chrome-plating department, located in a small annex to the southeast.

No details are available about the equipment of Department 4. Machinery of German manufacture was ready to be installed. Department 1 was equipped with the following machines:
18 lathes, 8 automatic lathes, 2 testing stands, 4 wheel grinders, 5 grinding machines, 1 boring machine. Finished parts were deposited in a storage room.
No details are available concerning the equipment of Department 3.
Department 2 was equipped with the following machines:
devices for the machining of motor blocks for tractors of type "NATI", 7 milling machines, 2 milling machines with lifting mechanism, 1 special slit milling machine, 5 boring machines, one 10-spindle grinder, four single-spindle grinders, 1 pressure testing stand operted with cold water of 5 to 6 atmospheres pressure, devices for the machining of cylinder blocks for tractors of type No 273, 11 milling machines, 2 cylinder milling machine, one special slit milling machine, 6 boring machines, several smaller milling machines, thread cutting machines, 1 test stand for pressure testing. The department was futhermore equipped with electric elevators and barrows for the haulage of cylinder blocks.

7 The blacksmith shop a teel skeleton structure with brick walls, about 125 x 50 x 25 meters, equipped with 1 cold-hammering department, 3 compressed-air hammers, several steam hammers, about 4 annealing furnaces, 1 electrical annealing furnace, a type-"Pelz" die from Erfurt, several gas fired places, anvils and workbenches.

8 Hardening and testing department, 125 x 50x25 meters, equipped with 4 to 6 gas-fired hardening furnaces, each of them 8 meters long, 2 meters wide and about 2.4 meters high. The cylinder blocks were hardened, oiled and greased here and then carried to Department 3. Tails for tractor wheels manufactured of angle iron at the blacksmith shop were also hardened in this department.

9 House of the factory politruck, a two-story brick building, 15 x 15 meters.

10 Stock yard for unserviceable machines.

11 Material depot, a wooden shed 100 x 10 meters.

12 New building of undetermined purpose, a two-story brick building, 30 x 15 meters, finished in January 1950.

13 Blacksmith and electrical department for minor repair work, a brick building, 120 x 15 meters, equipped among others with a sandblast unit.

14 Scrap crushing installation.

15 Foundry, a steel skeleton structures with brick walls, 300 x 100 x 200 meters.

a Molding shop

b Mold assembly

c Smelting furnaces with filling devices above them, and small raw material depot

d Foundry floor

e Cleaning department and test stands

f Laboratory

g Bath

h Electrical Switching room

i Material depot

16 Administration building housing mess halls and kitchen, a three-story brick building built at an angle, 150 x 50 x 15 meters

16a Parking lot

17 Distribution point for natural gas, a brick building, 10 x 10 meters.

18 Ration supply depot

19 Railroad loading ramp

19a Forming-sand daump

20 Boiler house, about 20 x 10 x 15 meters with a 10-meter high smokestack. A portable engine for the production of superheated steam was located in this building

20a Coke and coal dumps

21 Storage of defective material to be refounded

22 House for factory workers, a two-stpry building, 50 x 30 meters. Brick foundation with wood superstructure

23 Storage of oil and fuel. A two-story building with a basement, one brick and one wooden story.

24 House for female factory workers, a two-story building, the ground floor was a brick structure, the second floor a wooden structure.

25 Six gate building, brick structures, about 8.5 meters.

26 Bread magazine, a wooden shed, 5 x 5 meters

27 Garage to accommodate three-ton ZIS trucks, a wooden structure, 20 x 20 meters

27a Parking lot with cement floor

28 Tailor and shoemaker shop for factory workers, a wooden structure, about 20 x 10 meters

29 Fuel container, about 6 meters high and 5 meters in diameter

30 Board fence topped with barbed wire

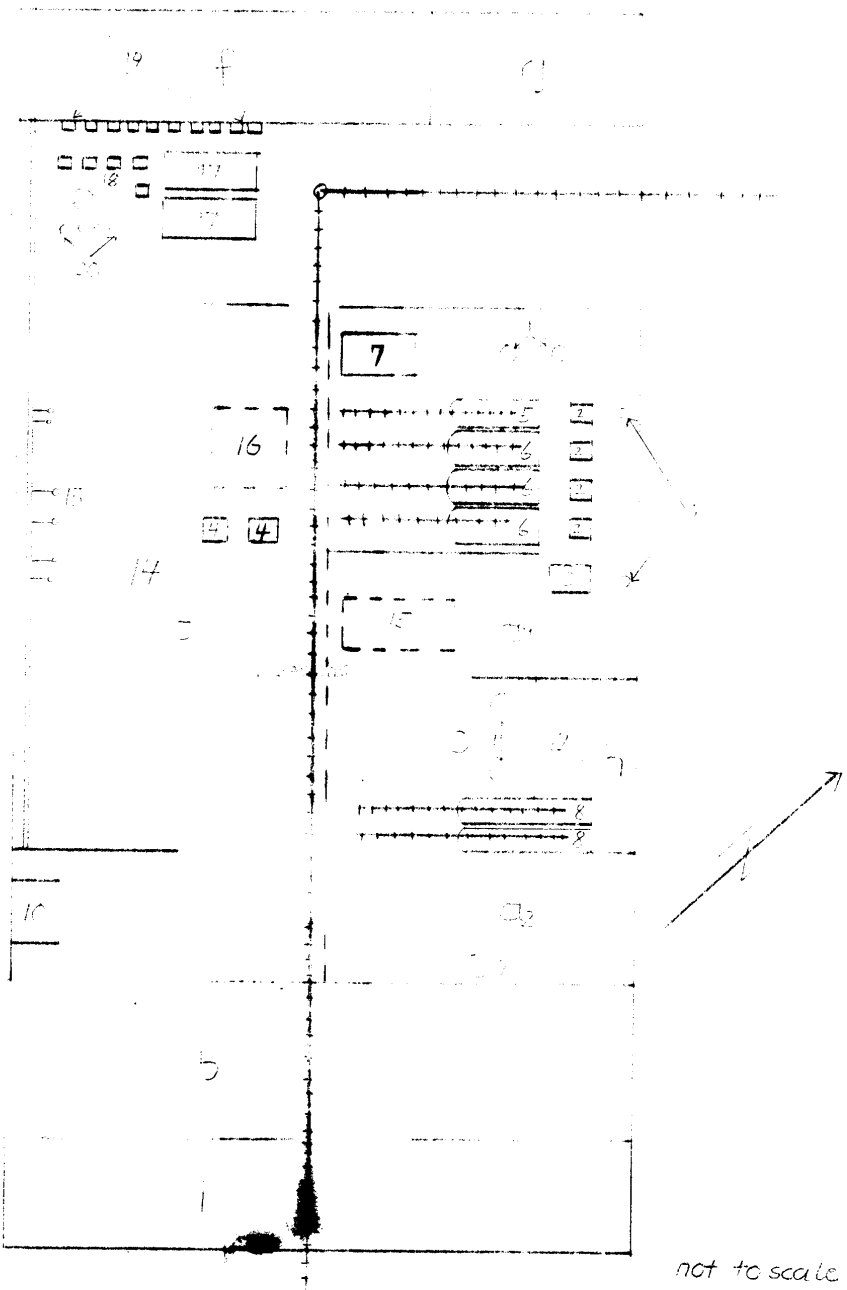
31 Watch towers

32 Streetcar line leading to the town center

33 Grass

34 Bazaar outside the compound

35 Factory roads



For legend see next page

Layout Plan of the Foundry at the "Serp i Molot" Factory in Saratov

Legend:

a Molding shops

a1 Mechanical molding shop

1 2 powered mixing machines

2 4 small and 1 large molding machine of German manufacture

3 5 compressed-air hammers

4 Two small molding machines, still in use in 1948

5 Drying kiln for forming sand, about 4 meters long, 3 meters wide and 3 meters high

6 3 drying kilns for molds, each 6 meters long, 3 meters wide and 3 meters high

7 Drying room for forming sand

a2 8 Hand-molding shop equipped with two drying kilns for molds

9 Mixing machine

10 Drying room for forming sand

b Mold assembly department, designated "Produktion". No details available.

c Smelting department.

11 2 gas-fired cupola furnaces, about 8 - 10 meters high, and with diameters of 2 meters and 1.5 meters respectively.

12 Filling installation behind the furnaces and material depot

d Foundry floor

13 Four to six traveling cranes for the haulage of castings to the cleaning department

14 large foundry floor

15 Small foundry floor

16 Small foundry floor, not yet in operation in 1948.

e Cleaning department

17 Two cleaning drums, called Barabans

18 Five abrading machines

19 Ten sand-blast units

20 Several compressed-air hammers

f Laboratory for the testing of castings, equipped with:
4 testing stands for cylinder blocks
1 radioscopic material testing apparatus
1 gas annealing furnace for the repair of defective cylinder blocks
1 mobile autogenic welding apparatus

g Bath

h Switching plant and electromechanical shop

i Supply depot

[redacted] Molds for large castings were manufactured at the mechanical molding shop, small molds were made at the hand-molding shop (sic). In the same period of time, the large molding machine had an output of 40 molds as compared with 80 molds made by the smaller machine. Narrow-gauge lorries, 1.5 meters long, 80 cm wide, and about 1.8 meters high, accommodating either 18 small molds or 8 large molds conveyed them to the drying kilns. The drying pro procedure lasted 2 hours at a temperature of 200° C. The chambers were charged nine times per shifts, 5 charges to one of the kilns and four to the other. Aftern the drying process, the molds were conveyed to the so-called "Produktion " assembly department and from there brought to the foundary floor for casting. The casting material consisted of raw iron, scrap iron and scrap steel, to which lime was added. Per shift the large furnace was charged with 80 rounds of 100 kg of raw iron, 150 kg of scrap, and 100 kg of coke, each. The material was weighed in 50kg containers, hauled to the furnace by an elevator and automatically dumped into the furnace. The smaller furnace was charged per shift with 40 rounds of the same composition. The smelting procedure took place at night. The charging of the furnaces had to be finished prior to the beginning of the night shift. Tapping of the furnaces was performed 6 hours after the charging. Both furnaces were continuously in operation. The castings were hauled to the cleaning department where they were sandblasted, cleaned, polished, laboratory-tested, stamped and then brought to the machining department. Castings with minor defect were annealed in the laboratory and automatically welded in order to lower the high percentage of defective products. In 1949, an assembly line was installed at the foundry and from this time on, the molds were transported to the foundry on the assembly line and from there on to the cleaning department. In this way an uninterrupted production line was established. Production work at the foundry was frequently interrupted, however, by substandard outputs of the furnaces. Defective products were re-cast. An average of 100 to 110 motor blocks were produced per [redacted] 100 to 110 percent of the work norm. Deducting 30 percent of defective products the average output was, however, only about 80 motor blocks. Some 50 PWs and 35 Soviet laborers worked per shift at the foundry. 25X1

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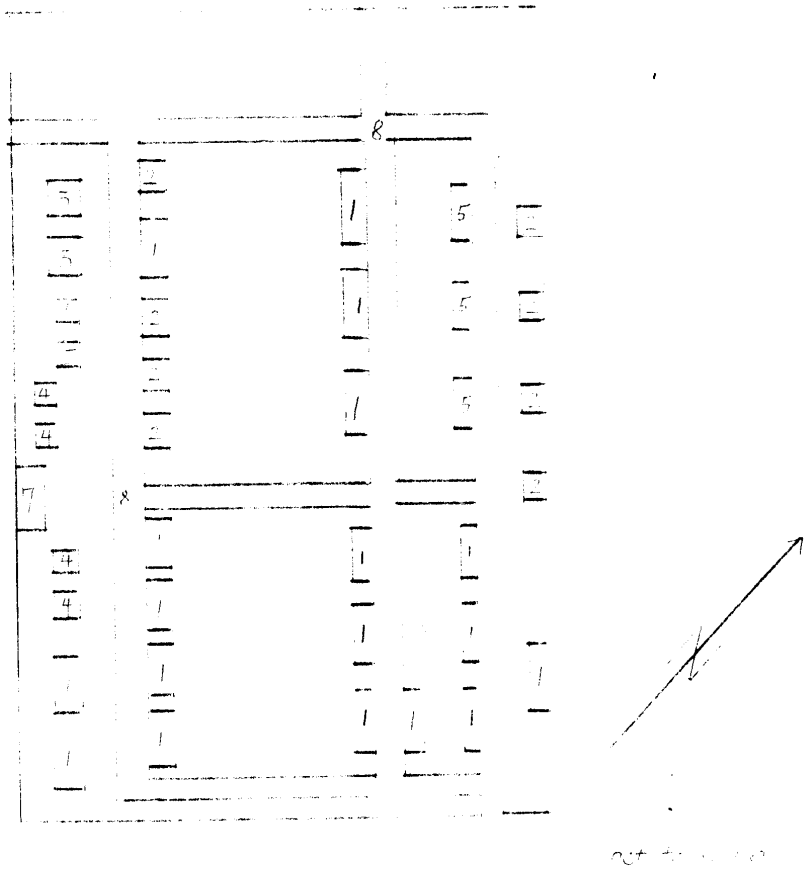
Annex 4



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Layout Plan of Department 1 of the "Serp i Molot" Factory in Saratow.

Legend:

1 - 18 lathes

2 - 8 automatic lathes

3 - 2 testing machines

4 - 4 grinding machines

5 - 5 grinding machines

6 - 1 boring machine

7 - Toilet

8 - Corridors

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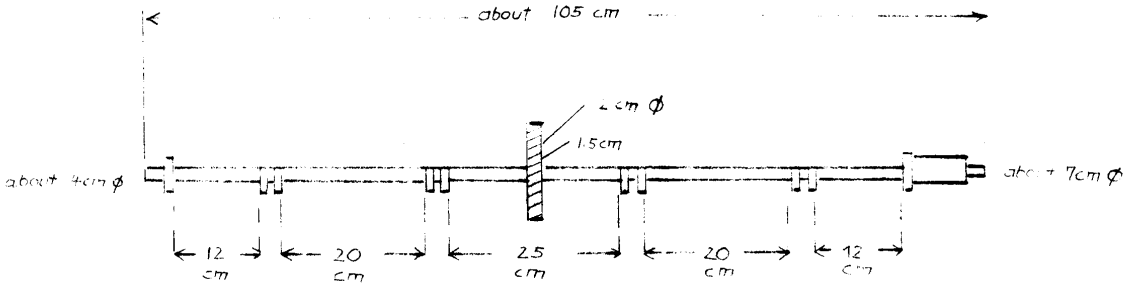
Annex 5

A



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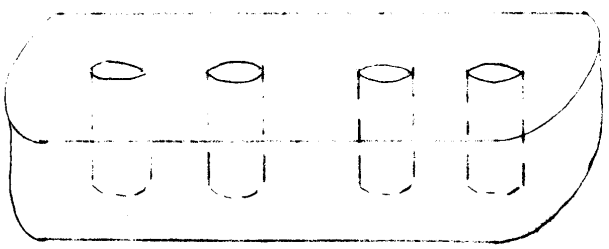

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[redacted]

Legend to the Sketches of Workpieces.

A. Camshafts

The camshafts were cast at the foundry and subsequently, at Department 1, honed to precision of one-tenth of a millimeter. The shafts were about 105 cm long and fitted with 4 cams designed for 4-cylinder motors. The end section of the shaft connected to the gears was about 10 cm long and 7 cm in diameter. The distance between the two inner cams on either side of the central disk was about 25 cm. The distance between these two cams and the two outer cams was 20 cm. The distance between each of the outer cams and the two disks on either end of the shaft was 12 cm. A solid disk 1.5 cm thick and 12 cm in diameter was located in the middle. A work norm of 40 camshafts per shift had been fixed. On the average, the German PWs reached an output of 45 shafts per shift, 30 - 35 shafts were made by Soviet workmen. After the machining process in Department 1, the shafts were brought to the hardening department. Subsequently they were allegedly, prepared for shipment in Department 3.

B. Motor Blocks

Two different sizes of motor blocks were manufactured, a larger one for tractors of type "NATI" and a smaller one for tractors of type No 273. Motor blocks for the "NATI" type had the following measurements: a length of about 80 cm, a width of 30 cm, a height of 25 cm, and a weight of 50 kg. The smaller motor blocks had the following measurements: a length of 60 cm, a width of 25 cm, a height of 20 cm, and a weight of about 40 kg. The inside diameter of the cylinders of the large motor blocks was about 12 cm, their height about 14 cm; the corresponding measurements of the smaller motor block cylinders were 10 and 12 cm respectively. To one side all four corners of the motor blocks had markedly rounded contour.

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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT [redacted]

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2. On page 3, Annex 2, point 9, [illegible] should read politruk.

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STATE	x	NAVY	x	NSRB		DISTRIBUTION			
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COUNTRY USSR REPORT

TOPIC Tractor Parts Factory in Saratov 25X1

EVALUATION PLACE OBTAINED 25X1

DATE OF CONTENT 25X1

DATE OBTAINED DATE PREPARED 21 January 1955

REFERENCES

PAGES 3 ENCLOSURES (NO. & TYPE) 5 - sketches on ditto with legends

REMARKS

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1. The Saratov (51°34'N/46°02'E) "Serp i Molot" (Sickle and Hammer) factory manufacturing tractor parts was located in the center of the town on the southern side of Astrakhanskaya street, some 2 km east of the Saratov-2 shunting station, and at about 2 km from the Volga River. The factory area was bounded at all its four sides by streets, the factory fence was some 10 meters away from these streets. A streetcar line ran along Astrakhanskaya street along the factory. A green plot was located between Astrakhanskaya street and the factory compound, and a bazaar was located at the northern corner of the plant area. On the opposite side of the street were the Molotov shoe factory, a mattrass factory, and the secretariat of the Communist party. A standard-gauge railroad line connected the factory and the Saratov-2 shunting station. The plant had a Diesel switcher and a narrow-gauge rail net operated by lorries in and around the most important workshops.

2. Most of the workshops buildings were erected prior to World War II and had not suffered any war damages. In 1941 or 1942, some departments of the "Serp i Molot" plant had been transferred from Kharkov (50°00'N/36°15'E) to Saratov. Ammunition was manufactured there during the war. After the end of the war, production work was switched over to the manufacture of tractor parts. Between November 1947 and 1949, a new workshop was erected which started the production of sowing machines in early 1950. In 1949, three to five small new buildings were erected. Space for expansion of the plant was available at the northeastern and the southeastern portion of the plant area. The machinery available at the plant was mostly of considerable age but was continuously replaced and increased by reparations material from the GDR. By the end of January 1950, the PW camp located within the compound was disbanded and the dwellings were taken over by Soviet civilian workers.[2]

3. The fenced-in factory area covered some 600,000 square meters. The workshops were steel skeleton structures with brick walls. Several wooden structures were also located there. The main workshop included the following departments:

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a foundry with molding shop, mold assembly shop, melting furnaces, a foundry floor, cleaning department, laboratory, electrical switching room, and material stock department;
a mechanical department with subdepartments for the assembly of sowing machines, shaft manufacture, gear manufacture, and the manufacture of motor blocks; a blacksmith shop, a hardening department, and several subsidiary departments including two locksmith shops, two electrical workshops, two carpenter's shops, and a scrap crushing shop;
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4. The factory manufactured 4-cylinder motor blocks for tractors of types "NATI" and Nr 273, in addition to track shoes about 40 cm wide, rail wheels and wheels for tractors of type 273, camshafts for 4-cylinder motors, crankshafts, gear shafts, axles, gearwheels, and bevel gears.[4] In January 1949, a special order was received from Moscow regarding the manufacture of 10,000 belt pulleys of undetermined size to be delivered by 15 August 1949. Another order received in mid-1949 concerned the manufacture of an undetermined amount of cogwheels, some 50 cm in diameter and with a 4.5 cm gear rim. In 1947, attempts were made to manufacture 6-cylinder motor blocks. These attempts were, allegedly, discontinued because they ended in failure. [redacted] the manufacture of 6-cylinder motor blocks in 1948 and 1949. 25X1

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25X1

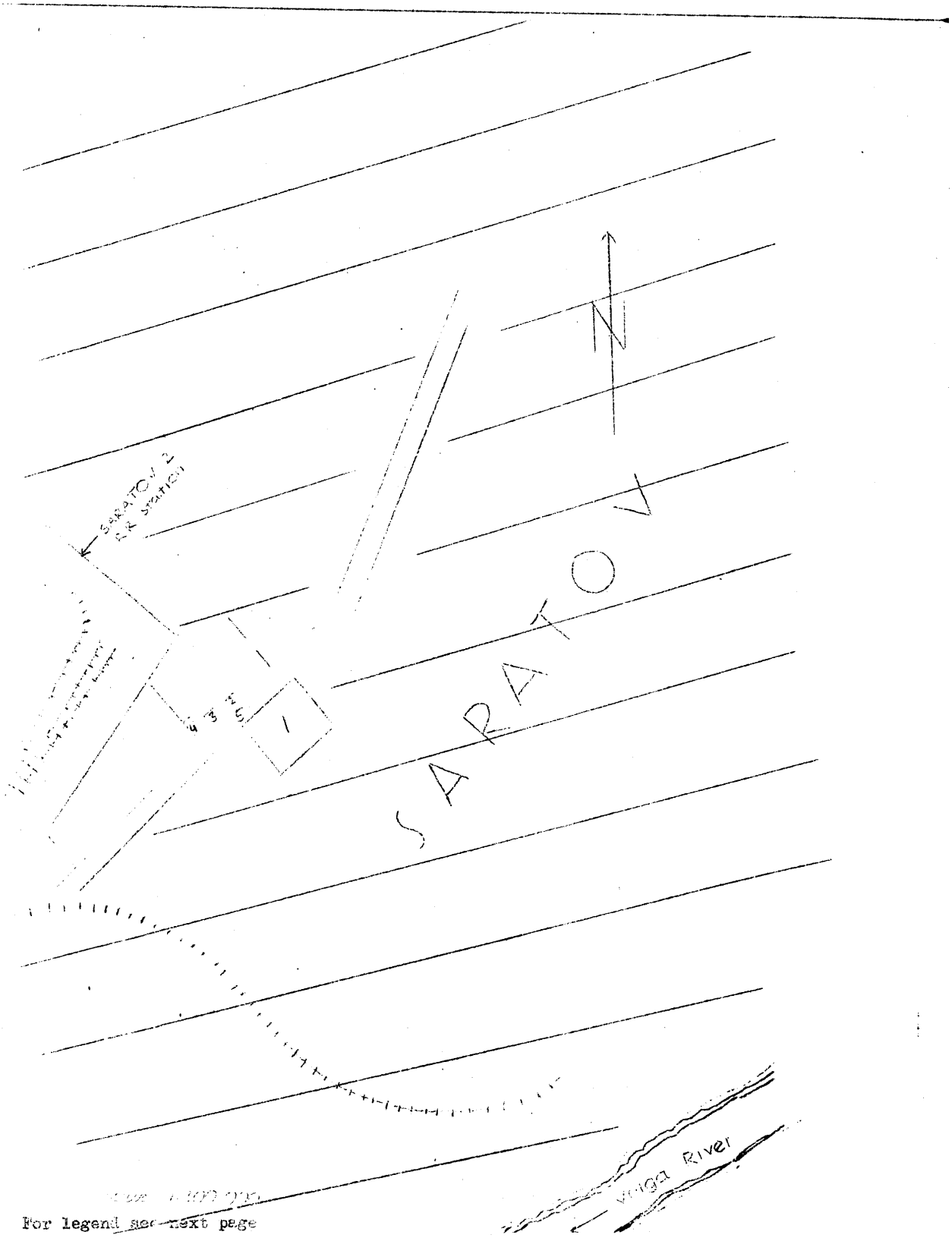
2. Comment. According to available data, the "Serp i Molot" works are housed in the former iron foundry "Kaganovich". This foundry was a branch plant of works No 614 "Traktordetail", located on the opposite side of Astrakhanov street and which manufactured ammunition and weapons during the war years. After the end of the war, the plant was converted to the manufacturing of agricultural machines and tractor parts. The present "Serp i Molot" factory was named after the Kharkov factory of agricultural machinery which had partly been transferred to Saratov during the war. 25X1

3. Comment. For layout sketch of the tractor plant, see Annex 2. For layout sketch of the foundry, see Annex 3. For layout sketch of the foundry Department No 1, Mechanical Department, see Annex 4. 25X1

25X1

4. Comment. Annex 5 contains working plans of camshafts and motor blocks manufactured at the plant in question. 25X1

Annex 1 [redacted] 25X1



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Annex 1
- 2 -

25X1

Location Sketch of the "Serp i Molot" Tractor Plant at Saratov.

Legend:

1 Tractor Plant "Serp i Molot"

2 Secretariat of the Communist party

3 Mattrass factory

4 Shoe factory "Molotov"

5 Astrakhanskaya street with streetcar line

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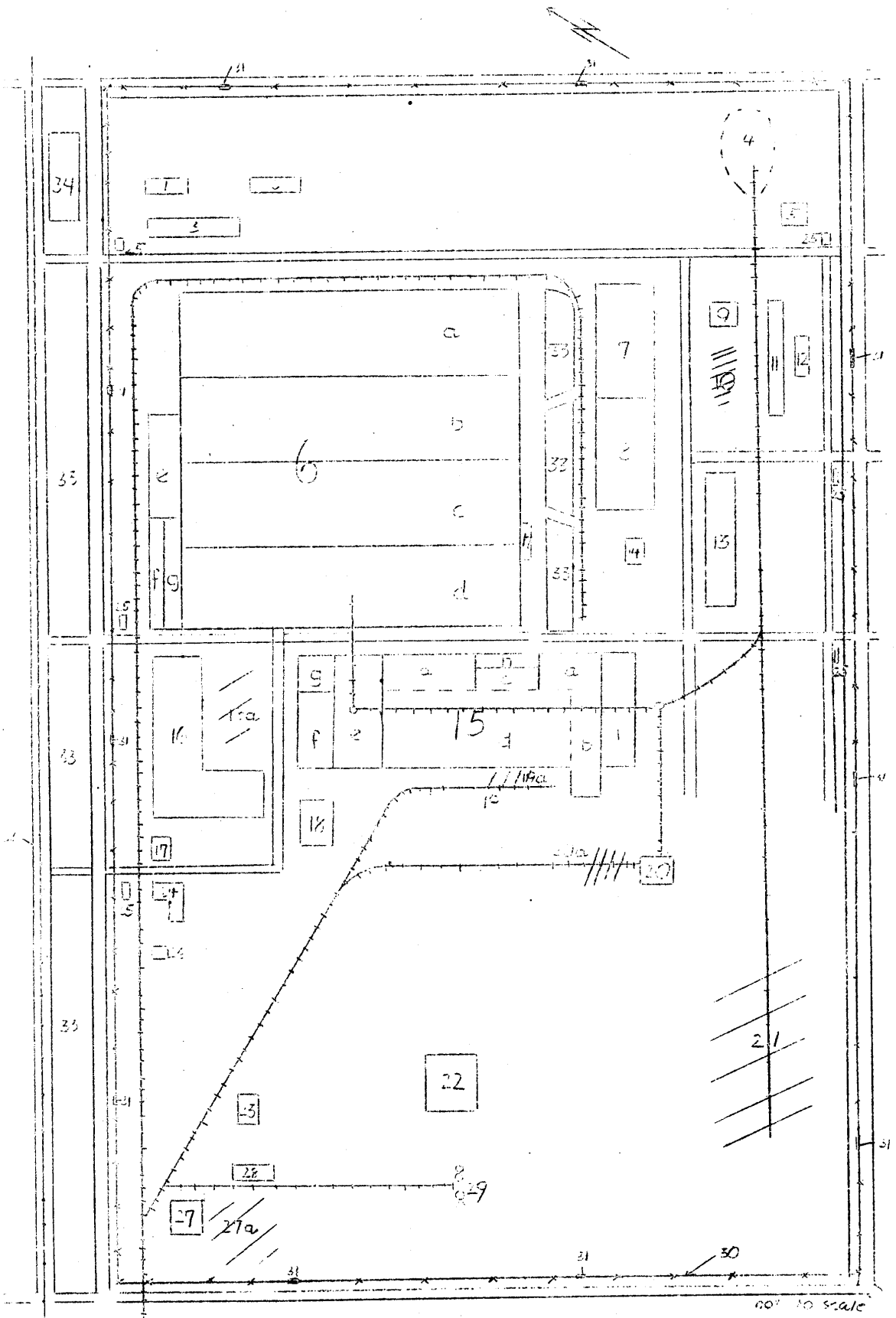
Annex 2



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Layout Plan of the "Serp i Molot" Works in Saratov.

Legend:

1 Carpenter's shop, brick building, 50 x 20 meters.

2 Carpenter's ship manufacturing shipping boxes, a brick building 60 x 15 meters.

3 Locksmith shop OGM for the assembly of machinery and for major repair work, a brick building, 80 x 20 meters.

4 Depression which was gradually filled up with waste material .

5 Department manufacturing electric motors and armature coils, a two-story brick building, 25 x 15 meters.

6 Main workshop, a steel skeleton structure with brick walls, 300 x 300 meters, with a two-story annex to the northwest 200 x 30 meters, with a loading ramp.

a Department 4, assembly of sowing machines.

b Department 1, manufacture of various shafts, such as crankshafts, camshafts, gaar shafts, as well as axles.

c Department 3, manufacture of cogwheels and bevel-gear wheels.

d Department 2, finishing of motor blocks.

e Instrument department, with packing department, storage room, shipping department and offices

f Living quarters

g Billets for guards, occupied by some 30 men and women.

h Chrome-plating department, located in a small annex to the southeast.

No details are available about the equipment of Department 4. Machinery of German manufacture was ready to be installed. Department 1 was equipped with the following machines:
18 lathes, 8 automatic lathes, 2 testing stands, 4 wheel grinders, 5 grinding machines, 1 boring machine. Finished parts were deposited in a storage room.
No details are available concerning the equipment of Department 3.
Department 2 was equipped with the following machines:
devices for the machining of motor blocks for tractors of type "NATI", 7 milling machines, 2 milling machines with lifting mechanism, 1 special slit milling machine, 5 boring machines, one 10-spindle grinder, four single-spindle grinders, 1 pressure testing stand operted with cold water of 5 to 6 atmospheres pressure, devices for the machining of cylinder blocks for tractors of type No 273, 11 milling machines, 2 cylinder milling machine, one special slit milling machine, 6 boring machines, several smaller milling machines, thread cutting machines, 1 test stand for pressure testing. The department was futhermore equipped with electric elevators and lorries for the haulage of cylinder blocks.

7 The blacksmith shop a teel skeleton structure with brick walls, about 125 x 50 x 25 meters, equipped with 1 cold-hammering department, 3 compressed-air hammers, several steam hammers, about 4 annealing furnaces, 1 electrical annealing furnace, a type-"Pelz" die from Erfurt, several gas fire places, anvils and workbenches.

8 Hardening and testing department, 125 x 50x25 meters, equipped with 4 to 6 gas-fired hardening furnaces, each of them 8 meters long, 2 meters wide and about 2.4 meters high. The cylinder blocks were hardened, oiled and greased here and then carried to Department 3. Tails for tractor wheels manufactured of angle iron at the blacksmith shop were also hardened in this department.

9 House of the factory politruck, a two-story brick building, 15 x 15 meters.

10 Stock yard for unserviceable machines.

11 Material depot, a wooden shed 100 x 10 meters.

12 New building of undetermined purpose, a two-story brick building, 30 x 15 meters, finished in January 1950.

13 Blacksmith and electrical department for minor repair work, a brick building, 120 x 15 meters, equipped among others with a sandblast unit.

14 Scrap crushing installation.

15 Foundry, a steel skeleton structures with brick walls, 300 x 100 x 20 meters.

a Molding shop

b Mold assembly

c Smelting furnaces with filling devices above them, and small raw material depot

d Foundry floor

e Cleaning department and test stands

f Laboratory

g Bath

h Electrical Switching room

i Material depot

16 Administration building housing mess halls and kitchen, a three-story brick building built at an angle, 150 x 50 x 15 meters

16a Parking lot

17 Distribution point for natural gas, a brick building, 10 x 10 meters.

18 Ration supply depot

19 Railroad loading ramp

19a Forming-sand daump

20 Boiler house, about 20 x 10 x 15 meters with a 10-meter high smokestack. A portable engine for the production of superheated steam was located in this building.

20a Coke and coal dumps

21 Storage of defective material to be refounded

22 House for factory workers, a two-stpry building, 50 x 30 meters. Brick foundation with wood superstructure

23 Storage of oil and fuel. A two-story building with a basement, one brick and one wooden story.

24 House for female factory workers, a two-story building, the ground floor was a brick structure, the second floor a wooden structure.

25 Six gate building, brick structures, about 8.5 meters.

26 Bread magazine, a wooden shed, 5 x 5 meters

27 Garage to accommodate three-ton ZIS trucks, a wooden structure, 20 x 20 meters

27a Parking lot with cement floor

28 Tailor and shoemaker shop for factory workers, a wooden structure, about 20 x 10 meters

29 Fuel container, about 6 meters high and 5 meters in diameter

30 Board fence topped with barbed wire

31 Watch towers

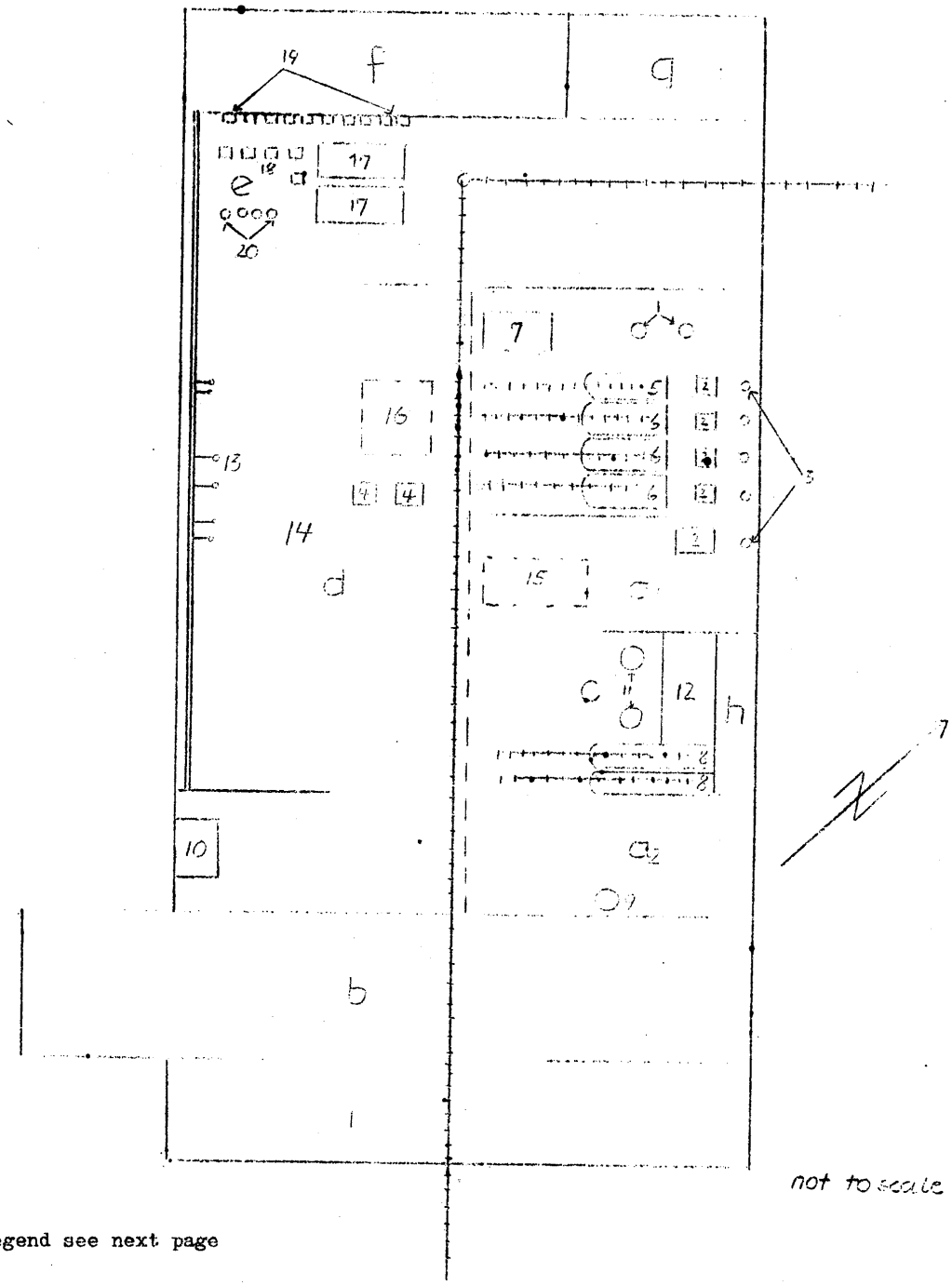
32 Streetcar line leading to the town center

33 Grass

34 Bazaar outside the compound

35 Factory roads

Annex 3 [redacted] 25X1



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25X1

Layout Plan of the Foundry at the "Serp i Molot" Factory in Saratov

Legend:

a Molding shops

al Mechanical molding shop

1 2 powered mixing machines

2 4 small and 1 large molding machine of German manufacture

3 5 compressed-air hammers

4 Two small molding machines, still in use in 1948

5 Drying kiln for forming sand, about 4 meters long, 3 meters wide and 3 meters high

6 3 drying kilns for molds, each 6 meters long, 3 meters wide and 3 meters high

7 Drying room for forming sand

a2 8 Hand-molding shop equipped with two drying kilns for molds

9 Mixing machine

10 Drying room for forming sand

b Mold assembly department, designated "Produktion". No details available.

c Smelting department.

11 2 gas-fired cupola furnaces, about 8 - 10 meters high, and with diameters of 2 meters and 1.5 meters respectively.

12 Filling installation behind the furnaces and material depot

d Foundry floor

13 Four to six traveling cranes for the haulage of castings to the cleaning department

14 1arge foundry floor

15 Small foundry floor

16 Small foundry floor, not yet in operation in 1948.

e Cleaning department

17 Two cleaning drums, called Barabans

18 Five abrading machines

19 Ten sand-blast units

20 Several compressed-air hammers

f Laboratory for the testing of castings, equipped with:
4 testing stands for cylinder blocks
1 radioscopic material testing apparatus
1 gas annealing furnace for the repair of defective cylinder blocks
1 mobile autogenic welding apparatus

g Bath

h Switching plant and electromechanical shop

i Supply depot

[redacted] 25X1

Molds for large castings were manufactured at the mechanical molding shop, small molds were made at the hand-molding shop (sic). In the same period of time, the large molding machine had an output of 40 molds as compared with 80 molds made by the smaller machine. Narrow-gauge lorries, 1.5 meters long, 80 cm wide, and about 1.8 meters high, accommodating either 18 small molds or 8 large molds conveyed them to the drying kilns. The drying procedure lasted 2 hours at a temperature of 200° C. The chambers were charged nine times per shifts, 5 charges to one of the kilns and four to the other. After the drying process, the molds were conveyed to the so-called "Produktion " assembly department and from there brought to the foundary floor for casting. The casting material consisted of raw iron, scrap iron and scrap steel, to which lime was added. Per shift the large furnace was charged with 80 rounds of 100 kg of raw iron, 150 kg of scrap, and 100 kg of coke, each. The material was weighed in 50kg containers, hauled to the furnace by an elevator and automatically dumped into the furnace. The smaller furnace was charged per shift with 40 rounds of the same composition. The smelting procedure took place at night. The charging of the furnaces had to be finished prior to the beginning of the night shift. Tapping of the furnaces was performed 6 hours after the charging. Both furnaces were continuously in operation. The castings were hauled to the cleaning department where they were sandblasted, cleaned, polished, laboratory-tested, stamped and then brought to the machining department. Castings with minor defect were annealed in the laboratory and automatically welded in order to lower the high percentage of defective products. In 1949, an assembly line was installed at the foundry and from this time on, the molds were transported to the foundry on the assembly line and from there on to the cleaning department. In this way an uninterrupted production line was established. Production work at the foundry was frequently interrupted, however, by substandard outputs of the furnaces. Defective products were re-cast. An average of 100 to 110 motor blocks were produced per shift or 100 to 110 percent of the work norm. Deducting 30 percent of defective products the average output was, however, only about 80 motor blocks. Some 50 PWs and 35 Soviet laborers worked per shift at the foundry.

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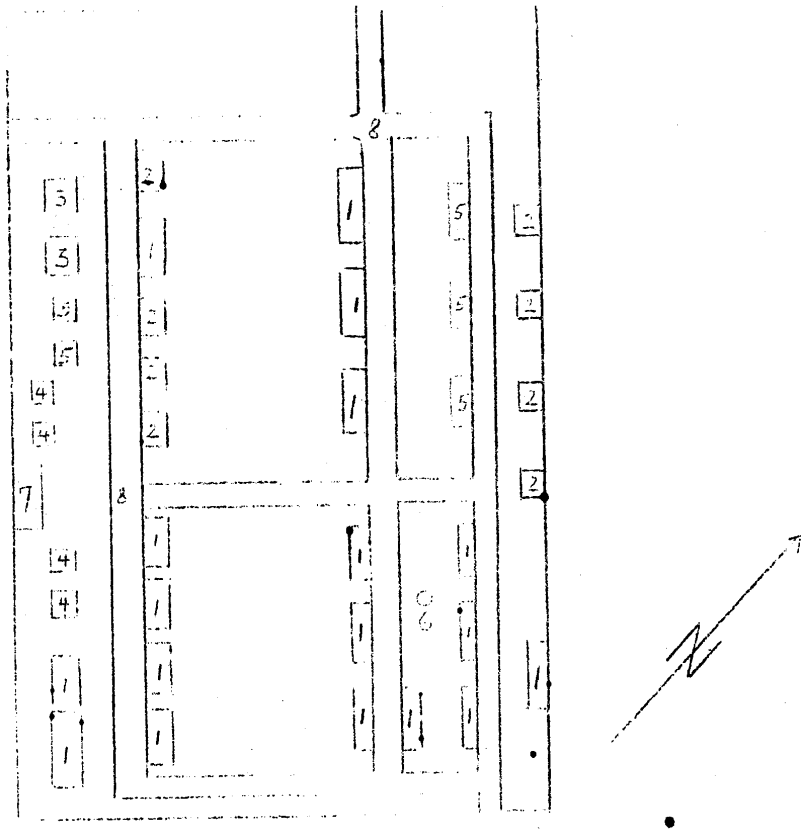
Annex 4 [redacted] 25X1



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25X1

Layout Plan of Department 1 of the "Serp i Molot" Factory in Saratow.

Legend:

1 - 18 lathes

2 - 8 automatic lathes

3 - 2 testing machines

4 - 4 grinding machines

5 - 5 grinding machines

6 - 1 boring machine

7 - Toilet

8 - Corridors

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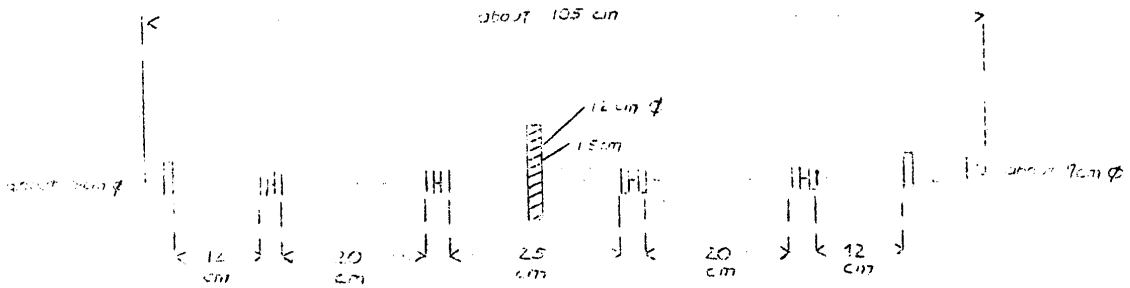
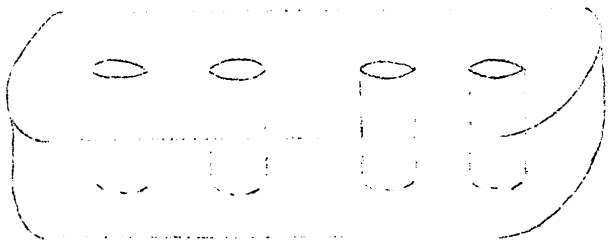
Annex 5

25X1

A



B



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Legend to the Sketches of Workpieces.

A. Camshafts

The camshafts were cast at the foundry and subsequently, at Department 1, honed to precision of one-tenth of a millimeter. The shafts were about 105 cm long and fitted with 4 cams designed for 4-cylinder motors. The end section of the shaft connected to the gears was about 10 cm long and 7 cm in diameter. The distance between the two inner cams on either side of the central disk was about 25 cm. The distance between these two cams and the two outer cams was 20 cm. The distance between each of the outer cams and the two disks on either end of the shaft was 12 cm. A solid disk 1.5 cm thick and 12 cm in diameter was located in the middle. A work norm of 40 camshafts per shift had been fixed. On the average, the German PWs reached an output of 45 shafts per shift, 30 - 35 shafts were made by Soviet workmen. After the machining process in Department 1, the shafts were brought to the hardening department. Subsequently they were allegedly, prepared for shipment in Department 3.

B. Motor Blocks

Two different sizes of motor blocks were manufactured, a larger one for tractors of type "NATI" and a smaller one for tractors of type No 273. Motor blocks for the "NATI" type had the following measurements: a length of about 80 cm, a width of 30 cm, a height of 25 cm, and a weight of 50 kg. The smaller motor blocks had the following measurements: a length of 60 cm, a width of 25 cm, a height of 20 cm, and a weight of about 40 kg. The inside diameter of the cylinders of the large motor blocks was about 12 cm, their height about 14 cm; the corresponding measurements of the smaller motor block cylinders were 10 and 12 cm respectively. To one side all four corners of the motor blocks had markedly rounded contour.